UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,982	03/28/2005	Akira Kakizura	2005_0199A	1176

513 7590 08/08/2006

WENDEROTH, LIND & PONACK, L.L.P.
2033 K STREET N. W.
SUITE 800
WASHINGTON, DC 20006-1021

EXAMINER	
SINGH, ANOOP KUMAR	

ART UNIT	PAPER NUMBER
1632	

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/523,982	KAKIZURA ET AL.	
	Examiner	Art Unit	
	Anoop Singh	1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☒ Claim(s) *1-3* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/8/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election of claims 1-2 (group I) in the reply filed on June 20, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Upon further review of the claims and specification, Examiner concluded that it would not be undue burden to examine all groups together. Accordingly, the restriction requirement is withdrawn and invention of group I and II are rejoined for examination purposes.

Claims 1-3 are under consideration.

Information Disclosure Statement

The information disclosure statement filed 2/8/2005 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent/doument listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Objections

Claims 1-3 are objected to because of the following informalities: In the instant case, claims 1-3 recite a number of acronyms such as ERRL1, ERR and MCAD. These terms should be identified by its full name at the first recitation of the term in the text of the claim followed by acronym. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for transgenic mouse comprising in its genome, a construct comprising nucleic acid sequence encoding ERRL1/PGC-1beta, wherein said mouse are lean and expresses higher level of ERRL1/PGC-1 beta; and method of using said transgenic mouse for screening candidate substances that fulfills one or more of the following from the list selected from (a) increase the expression level of ERRL1 (b) increase transcriptional activity, (c) promote binding of ERR1 to ERR and (d) increasing the expression of MCAD gene product, does not reasonably provide enablement for the any other nonhuman animal, or any method for screening substance that serves as the

active ingredient in a drug for obesity and/or diabetes or any drug for obesity and/or diabetes. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Claim 1 encompasses a method for screening a substance which serves as the active ingredient in a drug for obesity and or diabetes comprising treating cell or an animal with a candidate drug that fulfils one or more requirements selected from the list (a) increase the expression level of ERRL1 (b) increase transcriptional activity, (c) promote binding of ERR1 to ERR and (d) increasing the expression of MCAD gene product. Claim 2 is directed to a drug for obesity and or diabetes comprising as the active ingredient one or more substance as described in claim 1. Claim 3 is drawn to a transgenic nonhuman animal comprising in its genome a purified polynucleotide encoding a ligand factor ERRL1 for a nuclear receptor ERR and over expressing the ligand factor ERRL1.

The application as filed is not enabling for the invention commensurate with the full scope of the claims because art of screening drugs for diabetes and obesity in a cell or nonhuman transgenic animal in any species other than a transgenic mouse athology associated with obesity and diabetes is unpredictable as has been recognized by the art of skill and therefore require undue experimentation. As will be shown below, these broad aspects as well as limitations were not enabled for the claimed invention commensurate with the full scope of the claims at the time of filling of this application

because neither the specification nor the art of record taught sufficient guidance to practice the claimed invention commensurate with the scope of the claim.

In determining whether Applicant's claims are enabled, it must be found that one of skill in the art at the time of invention by applicant would not have had to perform "undue experimentation" to make and/or use the invention claimed. Such a determination is not a simple factual consideration, but is a conclusion reached by weighing at least eight factors as set forth in In re Wands, 858 F.2d at 737, 8 USPQ 1400, 2d at 1404. Such factors are: (1) The breadth of the claims; (2) The nature of the invention; (3) The state of the art; (4) The level of one of ordinary skill in the art; (5) The level of predictability in the art; (6) The amount of direction and guidance provided by Applicant; (7) The existence of working examples; and (8) The quantity of experimentation needed to make and/or use the invention.

These factors will be analyzed, in turn, to demonstrate that one of ordinary skill in the art would have had to perform "undue experimentation" to make and/or use the invention and therefore, applicant's claims are not enabled commensurate with the full scope of the claims.

Furthermore, USPTO does not have laboratory facilities to test if an invention will function as claimed when working example are not disclosed in the specification, therefore enablement issues are raised and discussed based on the state of knowledge pertinent to an art at the time of the invention, therefore, skepticism raised in enablement rejections are those raised in the art by artisan of expertise.

Claims 1-3 are broad in scope. The following paragraph will outline the full scope of the claims: Claimed invention recites any transgenic nonhuman animal that over expresses ligand factor ERRL1 under the control of any exogenous promoter and a method of using such nonhuman animal in screening a substance as drug for diabetes and obesity.

Since these claims are broad in scope, encompassing any nonhuman transgenic animal made by any method using any exogenous promoter, the disclosure provided by the applicant, in view of prior art, must encompass a wide area of knowledge to a reasonably comprehensive extent. In other word each of those, aspect considered broad must be shown to a reasonable extent so that one of the ordinary skills in the art at the time of invention by applicant would be able to practice the invention without any undue burden being on such Artisan.

The specification broadly discloses a method of screening drugs for obesity and or diabetes by using the expression and the activity of a ligand factor ERRL1 for a receptor estrogen receptor related receptor as an index. The specification discloses ERRL1 sequence after searching expression sequence tags for PGC-1 related molecule. It is noted that that Lin et al (J Biol. Chemistry 277, 1645-1648, 2002) also reported cloning of a PGC-1 homologue named PGC-1β with only one amino acid difference from ERRL1 (see page 26 lines 11-22 of the specification). Furthermore, it is also noted that Applicants in a post filing publication related with instant invention have synonymously used the term ERRL1 and PGC-1β (see Kamei et al Proc Natl Acad Sci U S A. 2003; 100(21): 12378-83). The invention is based in part to a finding indicating

that the ERRL1 function a protein ligand for ERRs and control energy expenditure in vivo (see discussion on page 34 lines 16-30 and page 33 lines 9-30).

However, such broad disclosure does not demonstrate the information required by the Artisan to reasonably make and use any nonhuman transgenic animal comprising ERRL1 in its genome with disclosed phenotype. The specification does not provide any specific guidance with how other nonhuman transgenic animal would be prepared. In fact, Applicant's examples only describe a mouse carrying ERRL1. The specification does not provide any information as to what level of expression of the transgene in the parent of other species are required for obtaining the phenotype disclosed. In particular, the specification does not provide guidance as to other transgenic phenotype that can be modulated by the breeding of parents expressing different transgene.

As a first issue, claims are directed to a nonhuman transgenic animal. The specification also contemplated using embryonic stem cell for making transgenic nonhuman animal (see page 20, lines 15-20 of the specification). At the time of the invention, although many of the methods are routine, neither the art of record nor the specification teaches how to practice the claimed invention for all different type nonhuman animal and how ES cells from different species are going to be obtained and cultured. An artisan of skill would have required undue experimentation to practice the claimed invention because the method as recited involves culture of multiple ES cells. The art at the time of filing further held that method of making nonhuman animal from ES technology was not predictable for any species other than mouse. However,

Houdebine, 1994 (Journal of Biotechnology, Vol., 34, pp 269-287) describes that although ES cells can be used to generate transgenic animals, but this approach remains restricted to mice, ES cells from other species are not presently available (pp 279, column 1, line 7-8). Furthermore Mullin et al also point that non-mouse ES cell capable of providing germ line chimeras were not available (Mullins et al., Journal of Clinical Investigation, 1996, pp 1557, 1st paragraph). Campbell and Wilmut (1997, Therigenology) acknowledges report of ES-like cells in number of species, but also emphasize that there are no report of any cell line that contribute to germ line in any species other than mouse (pp 65; 2nd paragraph). Thus, the state of the art is such that ES cell technology is generally limited to the mouse system and that only putative ES cells exist for other species (Moreadith et al., J. Mol. Med., 1997 p214, abstract). Therefore, at the time of filing of this application, method of transgenic animal could not be accomplished for any species other than mouse. The specification fails to provide sufficient guidance to make nonhuman transgenic other than mice by teaching obtaining ES cells in species other than mice. The specification also fails to provide sufficient guidance to make transgenic mice using stem cell other than ES cells. The specification does not teach how to make transgenic nonhuman animal for any other species other than mice or correlate making mice to making transgenic for any other species. Therefore, the claims should be limited to mouse and method of using such mouse as discussed in the office action. Furthermore, the art of making a transgenic nonhuman animal is not predictable because of several factors. For example, Cameron (Cameron ER, Molecular Biotechnology 7: 253-265, 1997) noted, " Well regulated transgene

expression is the key to successful transgenic work, but all too often experiments are blighted by poor levels or complete absence of expression, as well as less common problems, such as leaky expression in non targeted tissues. A feature common to any transgenic experiments is unpredictable transgenic lines produced with same construct frequently displaying different levels of expression. Further, expression levels do not correlate with number of transgene copies integrated. Such copy number independent expression pattern emphasizes the influence of surrounding chromotin on the transgene" (pp 256; section 4 on transgene regulation and expression). Additionally promoters and enhancer elements may not function in all species because they may require specific cellular factors. The specification does not provide any guidance as to whether a given promoter used for expressing an exogenous gene in one animal would have functional in other animals and even if the promoter may have been active, whether the level of the transgenic product produced would have been sufficient to produce certain phenotype. It would require undue experimentation for an Artisan to make and use the claimed invention and/or working examples demonstrating the same, such invention as claimed by the applicant is not enabled for the claimed inventions commensurate with the full scope of the claims.

As a second issue, instant claim 3 does not recite any specific phenotype of claimed transgenic nonhuman animal except expression of ERRL1. The specification teaches generation of transgenic mouse using CAG promoter (see figure 4A). However, the art of making a transgenic nonhuman animal and resulting phenotype are sensitive to factors such as integration site of the transgene, copy number as well as genetic

background of the mouse used. This observation is supported by Houdebine et al who state "numerous experiments have shown that the level and specificity of expression of a gene construct used as a transgene cannot be easily predicted" (Houdebine et al, 2000, Transgenic Research 9, 305-320, pp 309, col. 2). Further, Houdebine et al states that the potency of any transgene can only be estimated in transgenic animals and the level of expression of the transgene in mice is not predictive of their level in other animals (pp 310, col. 1, paragraph 2). Finally, Houdebine et al state that another well-known problem with transgenesis is leaky expression of the transgene in various tissues in which the utilized promoter is not expected to work because of ectopic expression due to a position effect (pp 310, col. 1, paragraph 3). Furthermore Kolbe et al also describe "the expression of foreign gene in transgenic nonhuman animals is generally unpredictable as transgenes integrated at random after pro nuclear injection into fertilized oocytes" because of inhibition of neighboring chromatin (Kolb et al, 1999, Gene 227, 21-31, abstract). The specification does not provide any support to suggest that the expression of the transgene in mice is predictive of level in any other animals. Thus, the guidance provided by the specification amounts to invitation for the skilled Artisan to try and follow the disclosed instructions to make and use the claimed invention for making other nonhuman transgenic animal using any promoter and method.

As a third issue, while the state of the art of transgenic is such that one of skill in the art would be able to produce transgenic animals comprising a transgene of interest, it is not predictable if the transgene would be functional at a level and specificity

sufficient to cause a particular or specific phenotype. The art of transgenic is not a predictable art with respect to transgene behavior or resulting phenotype, Without evidence to contrary, transgene expression in different species of transgenic non human animals is not predictable and varies according to a particular host species and to the transgene used. This observation is specifically supported by Hammer et al (J Anim Sci. 1986; 63(1): 269-78) who report the production of transgenic mice, sheep and pigs, however, only transgenic mice exhibited an increased in growth due t the expression for the gene encoding human growth hormone (se page 276-277). The same transgene construct in transgenic pigs and sheep did not cause the same phenotypic effect. Similarly Ebert et al (Mol Endocrinol. 1988, 2(3): 277-83) report a transgenic pig that did not developed an expected phenotype of growth during the rapid growth phase, when transfected. Further, Leiter et al (Diabetologia. 2002; 45(3):296-308) while reviewing the transgenic mice focuses on certain complications inherent in the methodologies from unexpected contributions from the genetic background states "multiple lines of transgenic mice should be produced and analyzed since transgene insertion is essentially random and each line usually conations different transgene copy number. Comparisons of multiple lines are essential for determining whether a transgene's effect is an intrinsic property of its function instead represents insertational mutagenesis or high copy number generated phenomena" (see page 304, paragraph 1). Furthermore, Finck et al (Journal of Clinical Investigation 116:615-622, 2006) in a post filing art describe "importance of PGC-1α and PGC-1ß as boosters of nuclear receptor (NR) function for understanding the fundamental connections between alterations in the

external environment and adaptive metabolic responses of striated muscle and liver. He evinces a positive outlook but concludes that, "the role of these powerful and highly inducible co-activators as protectors versus mediators of disease has not been well defined and will require additional translational studies bridging animal models, such as conditional genetically modified mouse models (see page 620, column 2, last paragraph). Thus, cited art clearly suggest the role of ERRL1 *in vivo* is still a subject of active research. The lack of guidance, breadth of claims, the level of skill in the art and state of the art at the time of claimed invention was made, it would have required undue experimentation to make and/or use the inventions as claimed.

In view of the lack of teachings or guidance provided by the specification with regard to an enabled nonhuman transgenic animal comprising in its genome ERRL1 and the lack of teaching or guidance provided by the specifications to overcome the art recognized unpredictability of promoters, expression pattern and for the specific reasons cited above it would have required undue experimentation for an artisan of skill to make and use the claimed inventions commensurate with the full scope of the claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites a limitation to screen a substance that serves as the "active ingredient in a drug for obesity and or diabetes". Drug is defined as a therapeutic agent; any substance, other than food, used in the prevention, diagnosis, alleviation, treatment, or cure of disease (per Stedman's Medical Dictionary 27th Edition). It appears that drug of instant invention may contain other ingredient other than active ingredient contrary to the definition of a drug. Thus, meets and bounds of drugs of instant invention is not clear. Claim 2 depends on claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Spiegelman et al (US Patent publication no. 2003/0124598, dated 7/3/2003, effective filing date 11/09/2001).

Claims are directed to a method of screening a substance which serves as the active ingredient in a drug for obesity and or diabetes comprising treating cell or an

animal with a candidate drug that increase the expression level of ERRL1. (Claim 2 is directed to a drug for obesity and or diabetes comprising as the active ingredient one or more substance as described in claim 1. Claim 3 is drawn to a transgenic nonhuman animal comprising in its genome a purified polynucleotide encoding a ligand factor ERRL1 for a nuclear receptor ERR and overexpressing the ligand factor ERRL1.

Spiegelman et al teach an isolated nucleic acid molecule PGC-1beta, which encode novel PGC-1 related co-activator molecules (abstract). It is noted that the isolated nucleic acid molecule disclosed by Spiegelman may comprise a nucleotide sequence, which is at least about 50- 99.99% or more identical to the entire length of the nucleotide sequence (page 2 and 3, paragraph 20). It is emphasized that Applicants in a post filing publication related with instant invention have synonymously used the term ERRL1 and PGC-1β (emphasis added, *supra*). Therefore, nucleic acid sequence disclosed by Spiegelman would meet the claim limitation of instant invention. Spiegelman et al also teach a method for modulating PGC-1beta activity comprising contacting a cell capable of expressing PGC-1beta with an agent that modulates PGC-1beta activity such that PGC-1beta activity in the cell is modulated wherein the agent either stimulates or inhibits PGC-1beta activity meeting the claim 1 limitation. Spiegelman also contemplate using an antibody as an agent that specifically binds to a PGC-1beta protein (see paragraph 24). Furthermore, Spiegelman also describe methods for identifying a compound that binds to or modulates the activity of a PGC-1b protein (see paragraph 27). Spiegelmen teaches several method of screening drug that modulate expression of PGC-1 beta including a method to identify other proteins, which

bind to or interact with PGC-1.beta using two hybrid system (see paragraph 208, 209). Spiegelman also contemplates using combination of two or more of the assays system for screening drugs (see paragraph 210). In addition, Spiegelman also teach therapeutic agents including peptides, peptidomimetics, amino acids, amino acid analogs, polynucleotides, polynucleotide analogs, nucleotides, nucleotide analogs, organic or inorganic compounds that modulates the expression or activity of PGC-1 beta (see paragraph 177 and 179). Spiegelman also teach a non-human transgenic animals preferably a mouse comprising an exogenous PGC-1beta sequences into its genome for studying the function and/or activity of a PGC-1 beta and for identifying and/or evaluating modulators of PGC-1beta activity (see paragraph 157 and 158). Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior ad products do not necessarily possess the characteristics of the claimed product. In re Best, 562 F.2d at 1255, 195 USPQ at 433.

Accordingly, Spiegelmen anticipates claims 1-3.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Spiegelman et al (WO00/32215, dated 06/08/2000).

Spiegelman et al teach an isolated nucleic acid molecule PGC-1, which encode proteins that could modulate various adipcyte-associated activities (see abstract). It is noted that that isolated nucleic acid disclosed by Spiegelman could be at least 50-95% or more homologous to nucleic acid sequence of PGC-1. It is emphasized that Applicants in a post filing publication related with instant invention have synonymously used the term ERRL1 and PGC-1β (emphasis added). Thus, a portion of nucleic acid sequence disclosed by Spiegelman would meet the claim limitation. Spiegelman et al also teach a method for identifying a compound that stimulates the interaction of PGC-1 protein with a target molecule (see page 12, line 19-23, claim 21-22). The binding of target molecule to the PGC-1 protein to form complex is also contemplated meeting the claim 1 limitation (see page 12, lines 24). Spiegelman teaches several method of screening drug that modulate expression of PGC-1 including a method to identify other proteins, which bind to or interact with PGC-1 (see pages 58-62 and claims 21-24). In addition, Spiegelman also teach therapeutic agents including polypeptides, nucleic acid molecule and antibodies that could be used for a method of treatment (see page 57, lines 17-20). Spiegelman also teach nonhuman transgenic animals preferably a mouse comprising an exogenous nucleic acid encoding PGC-1 sequences into its genome for studying the function and/or activity of a PGC- 1activity (see page 40, lines 3, 19-23). Where the claimed and prior art products are identical or substantially identical in

structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior ad products do not necessarily possess the characteristics of the claimed product. In re Best, 562 F.2d at 1255, 195 USPQ at 433. Since Spiegelman teaches a nucleic acid sequence and fragments that comprises ERRL1, therefore, any compound enhancing the PGC-1 activity would inherently enhance the expression level of ERRL1. It is noted that the method of independent claim, claim 1 recite one steps: (a) treating cell or animal with candidate substance enhancing the expression level of the transgene. Accordingly, claim 1 is anticipated by Spiegelman et al because steps recited in the invention are the same as those taught by the cited arts.

Accordingly, Spiegelman anticipates claims 1-3.

It is noted that claims 2-3 are product by process claim. Where, in the instant cases, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, "[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on

inherency' under 35 U.S.C. 102, on prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." The burden of proof is similar to that required with respect to product-by-process claims. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34

(CCPA 1977)). Further see MPEP § 2113, "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (Citations omitted) (Claim was directed to a novolac color developer. The process of making the developer was allowed. The difference between the inventive process and the prior art was the addition of metal oxide and carboxylic acid as separate ingredients instead of adding the more expensive pre-reacted metal carboxylate. The product-by-process claim was rejected because the end product, in both the prior art and the allowed process, ends up containing metal carboxylate. The fact that the metal carboxylate is not directly added, but is instead produced in-situ does not change the end product.).

Conclusion

No Claims allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anoop Singh whose telephone number is (571) 272-3306. The examiner can normally be reached on 9:00AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272- 0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Anoop Singh, Ph.D.
AU 1632